

Abstract Submitted
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Astrophysical radiation sources and terrestrial biodiversity¹

ADRIAN MELOTT, University of Kansas, ASTROBIOLOGY WORKING GROUP, UNIVERSITY OF KANSAS COLLABORATION — Extrasolar events such as gamma-ray bursts and supernovae have long been recognized as threats to the terrestrial biosphere, and possibly a driver of the mutation rate. It has recently become possible to quantify the severity of some of these effects and their expected incidence rate, with the dominant stress likely to be increased UVB at the surface due to ozone depletion, leading to protein and DNA damage to exposed organisms. Substantial fluctuations in the cosmic ray rate are also likely, and supported by terrestrial data. I will summarize results to date, and argue that biodiversity oscillations evident in the fossil record may be understood as a consequence of solar motion within the galaxy.

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